

```

FUNCTION mc3_d (wire_in[3..0],clk,reset) RETURNS (cnt_out[2..0]);
FUNCTION nm3_d (a[2..0],b[2..0],c[2..0],clk,reset) RETURNS (pixel_hit);
INCLUDE "lpm_or" ;

SUBDESIGN masks14
(
    clk, reset      : INPUT ;
    B0_in           : INPUT ;
    W0_in           : INPUT ;
    ER_FLAG_in     : INPUT ;
    w_in[50..0]      : INPUT ;
    B0_out          : OUTPUT;
    W0_out          : OUTPUT;
    ER_FLAG_out    : OUTPUT;
    pixel[11..0]     : OUTPUT;
)
VARIABLE
    B0_out          :dff;
    B0_temp         :dff;
    W0_out          :dff;
    W0_temp         :dff;
    ER_FLAG_out    :dff;
    ER_FLAG_temp   :dff;

% wire names %
    w0_2            : NODE;
    w0_101          : NODE;
    w0_1             : NODE;
    w0_102          : NODE;
    w1_102          : NODE;
    w1_1             : NODE;
    w1_101          : NODE;
    w1_2             : NODE;
    w1_100          : NODE;
    w2_101          : NODE;
    w2_1             : NODE;

```

w2_100 : NODE ;
w2_102 : NODE ;
w2_0 : NODE ;
w3_1 : NODE ;
w3_100 : NODE ;
w3_101 : NODE ;
w3_0 : NODE ;
w4_1 : NODE ;
w4_0 : NODE ;
w4_100 : NODE ;
w4_101 : NODE ;
w5_101 : NODE ;
w5_100 : NODE ;
w5_0 : NODE ;
w6_100 : NODE ;
w6_99 : NODE ;
w6_0 : NODE ;
w7_0 : NODE ;
w7_n1 : NODE ;
w7_99 : NODE ;
w7_100 : NODE ;
w8_100 : NODE ;
w8_99 : NODE ;

```
w8_n1 : NODE;  
w8_0 : NODE;  
w9_99 : NODE;  
w9_n1 : NODE;  
w9_100 : NODE;  
w9_98 : NODE;  
w9_0 : NODE;  
w10_n1 : NODE;  
w10_98 : NODE;  
w10_99 : NODE;  
w10_n2 : NODE;  
w10_100 : NODE;  
w11_99 : NODE;  
w11_n2 : NODE;  
w11_98 : NODE;  
w11_n1 : NODE;  
w11_100 : NODE;
```

```
% the following nodes represent the count of the 4 lsb wires (w0-w3) %  
a_2_102_101_1[2..0] : NODE;
```

```
a_101_1_101_100[2..0] : NODE;  
a_101_1_1_101[2..0] : NODE;  
a_1_1_101_100[2..0] : NODE;  
a_102_101_1_1[2..0] : NODE;
```

```
a_101_1_101_101[2..0]           : NODE;
a_1_101_100_100[2..0]           : NODE;
a_101_101_1_101[2..0]           : NODE;
a_102_101_101_1[2..0]           : NODE;
a_102_101_1_101[2..0]           : NODE;
a_1_101_100_0[2..0]             : NODE;
a_1_101_101_100[2..0]           : NODE;
a_102_102_101_1[2..0]           : NODE;
a_2_102_101_101[2..0]           : NODE;
a_2_2_102_101[2..0]             : NODE;
a_2_102_102_101[2..0]           : NODE;
a_102_2_102_101[2..0]           : NODE;
a_101_101_1_1[2..0]              : NODE;
a_101_100_100_0[2..0]            : NODE;
a_101_101_100_0[2..0]           : NODE;
a_101_101_100_100[2..0]          : NODE;
a_1_1_101_101[2..0]              : NODE;
a_101_100_0_0[2..0]              : NODE;
```

% the following nodes represent the count of the 4 middle wires (w4-w7) %

```
b_1_101_100_0[2..0]             : NODE;
b_0_100_99_n1[2..0]              : NODE;
b_0_0_100_99[2..0]               : NODE;
b_100_0_0_100[2..0]              : NODE;
```

```
b_0_100_100_99[2..0]           : NODE;
b_100_0_100_99[2..0]           : NODE;
b_101_100_0_0[2..0]           : NODE;
b_100_0_100_100[2..0]          : NODE;
b_100_100_0_100[2..0]          : NODE;
b_0_100_99_99[2..0]           : NODE;
b_101_100_100_0[2..0]          : NODE;
b_101_101_100_0[2..0]          : NODE;
b_101_100_0_100[2..0]          : NODE;
b_0_0_100_100[2..0]            : NODE;
b_101_101_100_100[2..0]         : NODE;
b_100_100_0_0[2..0]            : NODE;
b_100_100_99_99[2..0]          : NODE;
```

```
% the following nodes represent the count of the 4 msb wires (w8-w11) %
c_100_99_n1_99[2..0]           : NODE;
c_99_99_98_n2[2..0]             : NODE;
c_n1_n1_99_98[2..0]             : NODE;
c_99_n1_n1_99[2..0]             : NODE;
c_n1_99_99_98[2..0]             : NODE;
c_100_99_n1_n1[2..0]            : NODE;
c_99_n1_99_99[2..0]             : NODE;
c_99_99_n1_99[2..0]             : NODE;
c_99_n1_99_98[2..0]             : NODE;
```

```
c_100_99_99_n1[2..0]          : NODE;
c_n1_99_98_n2[2..0]          : NODE;
c_n1_99_98_98[2..0]          : NODE;
c_0_100_99_n1[2..0]          : NODE;
c_100_100_99_n1[2..0]        : NODE;
c_99_98_98_n2[2..0]          : NODE;
c_0_100_99_99[2..0]          : NODE;
c_99_98_n2_n2[2..0]          : NODE;
c_0_100_100_99[2..0]         : NODE;
c_100_100_99_99[2..0]        : NODE;
c_99_99_n1_n1[2..0]          : NODE;
c_n1_n1_99_99[2..0]          : NODE;
c_0_0_100_99[2..0]           : NODE;
c_0_0_100_100[2..0]          : NODE;
```

% the following nodes are the result of a mask for a given pixel %

```
p0_m[43..1]:NODE;
p1_m[40..1]:NODE;
p2_m[39..1]:NODE;
p3_m[41..1]:NODE;
p4_m[40..1]:NODE;
p5_m[35..1]:NODE;
p6_m[38..1]:NODE;
p7_m[40..1]:NODE;
```

```

p8_m[37..1]:NODE;
p9_m[33..1]:NODE;
p10_m[41..1]:NODE;
p11_m[46..1]:NODE;

BEGIN
B0_out.clk = clk;
B0_out.clrn = reset;
B0_temp.clk = clk;
B0_temp.clrn = reset;
B0_temp.d = B0_in;
B0_out.d = B0_temp.q;
W0_out.clk = clk;
W0_out.clrn = reset;
W0_temp.clk = clk;
W0_temp.clrn = reset;
W0_temp.d = W0_in;
W0_out.d = W0_temp.q;
ER_FLAG_out.clk = clk;
ER_FLAG_out.clrn = reset;
ER_FLAG_temp.clk = clk;
ER_FLAG_temp.clrn = reset;
ER_FLAG_temp.d = ER_FLAG_in;
ER_FLAG_out.d = ER_FLAG_temp.q;

% set the input wires to the correct wire %
w2_0=w_in0;
w3_0=w_in1;
w4_0=w_in2;
w5_0=w_in3;
w0_1=w_in4;
w1_1=w_in5;
w2_1=w_in6;
w3_1=w_in7;
w4_1=w_in8;
w0_2=w_in9;
w1_2=w_in10;
w10_n2=w_in11;
w11_n2=w_in12;
w7_n1=w_in13;
w8_n1=w_in14;
w9_n1=w_in15;
w10_n1=w_in16;
w11_n1=w_in17;

```

```

w6_0=w_in18;
w7_0=w_in19;
w8_0=w_in20;
w9_0=w_in21;
w1_100=w_in22;
w2_100=w_in23;
w3_100=w_in24;
w4_100=w_in25;
w5_100=w_in26;
w0_101=w_in27;
w1_101=w_in28;
w2_101=w_in29;
w3_101=w_in30;
w4_101=w_in31;
w5_101=w_in32;
w0_102=w_in33;
w1_102=w_in34;
w2_102=w_in35;
w9_98=w_in36;
w10_98=w_in37;
w11_98=w_in38;
w6_99=w_in39;
w7_99=w_in40;
w8_99=w_in41;
w9_99=w_in42;
w10_99=w_in43;
w11_99=w_in44;
w6_100=w_in45;
w7_100=w_in46;
w8_100=w_in47;
w9_100=w_in48;
w10_100=w_in49;
w11_100=w_in50;

% count the number of misses in the 4 lsb wires %
a_2_102_101_1[2..0] = mc3_d(w0_2,w1_102,w2_101,w3_1,clk,reset);
a_101_1_101_100[2..0] = mc3_d(w0_101,w1_1,w2_101,w3_100,clk,reset);
a_101_1_1_101[2..0] = mc3_d(w0_101,w1_1,w2_1,w3_101,clk,reset);
a_1_1_101_100[2..0] = mc3_d(w0_1,w1_1,w2_101,w3_100,clk,reset);
a_102_101_1_1[2..0] = mc3_d(w0_102,w1_101,w2_1,w3_1,clk,reset);
a_101_1_101_101[2..0] = mc3_d(w0_101,w1_1,w2_101,w3_101,clk,reset);

```

```

a_1_101_100_100[2..0] = mc3_d(w0_1,w1_101,w2_100,w3_100,clk,reset);
a_101_101_1_101[2..0] = mc3_d(w0_101,w1_101,w2_1,w3_101,clk,reset);
a_102_101_101_1[2..0] = mc3_d(w0_102,w1_101,w2_101,w3_1,clk,reset);
a_102_101_1_101[2..0] = mc3_d(w0_102,w1_101,w2_1,w3_101,clk,reset);
a_1_101_100_0[2..0] = mc3_d(w0_1,w1_101,w2_100,w3_0,clk,reset);
a_1_101_101_100[2..0] = mc3_d(w0_1,w1_101,w2_101,w3_100,clk,reset);
a_102_102_101_1[2..0] = mc3_d(w0_102,w1_102,w2_101,w3_1,clk,reset);
a_2_102_101_101[2..0] = mc3_d(w0_2,w1_102,w2_101,w3_101,clk,reset);
a_2_2_102_101[2..0] = mc3_d(w0_2,w1_2,w2_102,w3_101,clk,reset);
a_2_102_102_101[2..0] = mc3_d(w0_2,w1_102,w2_102,w3_101,clk,reset);
a_102_2_102_101[2..0] = mc3_d(w0_102,w1_2,w2_102,w3_101,clk,reset);
a_101_101_1_1[2..0] = mc3_d(w0_101,w1_101,w2_1,w3_1,clk,reset);
a_101_100_100_0[2..0] = mc3_d(w0_101,w1_100,w2_100,w3_0,clk,reset);
a_101_101_100_0[2..0] = mc3_d(w0_101,w1_101,w2_100,w3_0,clk,reset);
a_101_101_100_100[2..0] = mc3_d(w0_101,w1_101,w2_100,w3_100,clk,reset);
a_1_1_101_101[2..0] = mc3_d(w0_1,w1_1,w2_101,w3_101,clk,reset);
a_101_100_0_0[2..0] = mc3_d(w0_101,w1_100,w2_0,w3_0,clk,reset);

```

```

% count the number of misses in the 4 middle wires %
b_1_101_100_0[2..0] = mc3_d(w4_1,w5_101,w6_100,w7_0,clk,reset);
b_0_100_99_n1[2..0] = mc3_d(w4_0,w5_100,w6_99,w7_n1,clk,reset);
b_0_0_100_99[2..0] = mc3_d(w4_0,w5_0,w6_100,w7_99,clk,reset);
b_100_0_0_100[2..0] = mc3_d(w4_100,w5_0,w6_0,w7_100,clk,reset);
b_0_100_100_99[2..0] = mc3_d(w4_0,w5_100,w6_100,w7_99,clk,reset);

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b_100_0_100_99[2..0] = mc3_d(w4_100,w5_0,w6_100,w7_99,clk,reset);
b_101_100_0_0[2..0] = mc3_d(w4_101,w5_100,w6_0,w7_0,clk,reset);
b_100_0_100_100[2..0] = mc3_d(w4_100,w5_0,w6_100,w7_100,clk,reset);
b_100_100_0_100[2..0] = mc3_d(w4_100,w5_100,w6_0,w7_100,clk,reset);
b_0_100_99_99[2..0] = mc3_d(w4_0,w5_100,w6_99,w7_99,clk,reset);
b_101_100_100_0[2..0] = mc3_d(w4_101,w5_100,w6_100,w7_0,clk,reset);
b_101_101_100_0[2..0] = mc3_d(w4_101,w5_101,w6_100,w7_0,clk,reset);
b_101_100_0_100[2..0] = mc3_d(w4_101,w5_100,w6_0,w7_100,clk,reset);
b_0_0_100_100[2..0] = mc3_d(w4_0,w5_0,w6_100,w7_100,clk,reset);
b_101_101_100_100[2..0] = mc3_d(w4_101,w5_101,w6_100,w7_100,clk,reset);
b_100_100_0_0[2..0] = mc3_d(w4_100,w5_100,w6_0,w7_0,clk,reset);
b_100_100_99_99[2..0] = mc3_d(w4_100,w5_100,w6_99,w7_99,clk,reset);

% count the number of misses in the 4 msb wires %
c_100_99_n1_99[2..0] = mc3_d(w8_100,w9_99,w10_n1,w11_99,clk,reset);
c_99_99_98_n2[2..0] = mc3_d(w8_99,w9_99,w10_98,w11_n2,clk,reset);
c_n1_n1_99_98[2..0] = mc3_d(w8_n1,w9_n1,w10_99,w11_98,clk,reset);
c_99_n1_n1_99[2..0] = mc3_d(w8_99,w9_n1,w10_n1,w11_99,clk,reset);
c_n1_99_99_98[2..0] = mc3_d(w8_n1,w9_99,w10_99,w11_98,clk,reset);
c_100_99_n1_n1[2..0] = mc3_d(w8_100,w9_99,w10_n1,w11_n1,clk,reset);
c_99_n1_99_99[2..0] = mc3_d(w8_99,w9_n1,w10_99,w11_99,clk,reset);
c_99_99_n1_99[2..0] = mc3_d(w8_99,w9_99,w10_n1,w11_99,clk,reset);
c_99_n1_99_98[2..0] = mc3_d(w8_99,w9_n1,w10_99,w11_98,clk,reset);
c_100_99_99_n1[2..0] = mc3_d(w8_100,w9_99,w10_99,w11_n1,clk,reset);

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c_n1_99_98_n2[2..0] = mc3_d(w8_n1,w9_99,w10_98,w11_n2,clk,reset);
c_n1_99_98_98[2..0] = mc3_d(w8_n1,w9_99,w10_98,w11_98,clk,reset);
c_0_100_99_n1[2..0] = mc3_d(w8_0,w9_100,w10_99,w11_n1,clk,reset);
c_100_100_99_n1[2..0] = mc3_d(w8_100,w9_100,w10_99,w11_n1,clk,reset);
c_99_98_98_n2[2..0] = mc3_d(w8_99,w9_98,w10_98,w11_n2,clk,reset);
c_0_100_99_99[2..0] = mc3_d(w8_0,w9_100,w10_99,w11_99,clk,reset);
c_99_98_n2_n2[2..0] = mc3_d(w8_99,w9_98,w10_n2,w11_n2,clk,reset);
c_0_100_100_99[2..0] = mc3_d(w8_0,w9_100,w10_100,w11_99,clk,reset);
c_100_100_99_99[2..0] = mc3_d(w8_100,w9_100,w10_99,w11_99,clk,reset);
c_99_99_n1_n1[2..0] = mc3_d(w8_99,w9_99,w10_n1,w11_n1,clk,reset);
c_n1_n1_99_99[2..0] = mc3_d(w8_n1,w9_n1,w10_99,w11_99,clk,reset);
c_0_0_100_99[2..0] = mc3_d(w8_0,w9_0,w10_100,w11_99,clk,reset);
c_0_0_100_100[2..0] = mc3_d(w8_0,w9_0,w10_100,w11_100,clk,reset);

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% look at the following masks to check
for more than misses, if 3 or less set pixel %

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```

p11_m1=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_100_99_n1_99[],clk,reset);
p1_m1=nm3_d(a_101_1_101_100[],b_0_100_99_n1[],c_99_99_98_n2[],clk,reset);
p3_m1=nm3_d(a_101_1_101_100[],b_0_0_100_99[],c_n1_n1_99_98[],clk,reset);
p2_m1=p3_m1;
p5_m1=nm3_d(a_101_1_1_101[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);
p4_m1=p5_m1;
p3_m2=nm3_d(a_1_1_101_100[],b_0_100_100_99[],c_n1_99_99_98[],clk,reset);
p2_m2=p3_m2;

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```
p3_m3=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_n1_99_99_98[],clk,reset);
p9_m1=nm3_d(a_102_101_1_1[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);
p8_m1=p9_m1;
p5_m2=nm3_d(a_101_1_101_101[],b_100_0_100_100[],c_99_n1_99_99[],clk,reset);
p4_m2=p5_m2;
p1_m2=nm3_d(a_1_101_100_100[],b_0_100_100_99[],c_n1_99_99_98[],clk,reset);
p0_m1=p1_m2;
p7_m1=nm3_d(a_101_101_1_101[],b_100_100_0_100[],c_99_99_n1_99[],clk,reset);
p6_m1=p7_m1;
p1_m3=nm3_d(a_1_101_100_100[],b_0_100_99_99[],c_n1_99_99_98[],clk,reset);
p0_m2=p1_m3;
p5_m3=nm3_d(a_101_1_1_101[],b_100_0_100_100[],c_99_n1_99_99[],clk,reset);
p4_m3=p5_m3;
p5_m4=nm3_d(a_101_1_1_101[],b_100_0_100_99[],c_99_n1_99_98[],clk,reset);
p9_m2=nm3_d(a_102_101_1_1[],b_101_100_0_0[],c_100_99_99_n1[],clk,reset);
p8_m2=p9_m2;
p9_m3=nm3_d(a_102_101_101_1[],b_101_100_100_0[],c_100_99_99_n1[],clk,reset);
p8_m3=p9_m3;
p11_m2=nm3_d(a_2_102_101_1[],b_101_101_100_0[],c_100_99_99_n1[],clk,reset);
p10_m1=p11_m2;
p7_m2=nm3_d(a_102_101_1_101[],b_100_100_0_100[],c_100_99_n1_99[],clk,reset);
p6_m2=p7_m2;
p5_m5=nm3_d(a_101_1_101_101[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);
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p4_m4=p5_m5;

p7_m3=nm3_d(a_102_101_1_101[],b_100_100_0_100[],c_99_n1_n1_99[],clk,reset);

p6_m3=p7_m3;

p1_m4=nm3_d(a_1_101_100_0[],b_0_100_99_n1[],c_n1_99_98_n2[],clk,reset);

p0_m3=p1_m4;

p9_m4=nm3_d(a_2_102_101_1[],b_101_100_0_0[],c_100_99_n1_99[],clk,reset);

p5_m6=nm3_d(a_101_101_1_101[],b_100_0_100_100[],c_99_n1_99_98[],clk,reset);

p7_m4=nm3_d(a_101_1_1_101[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);

p6_m4=p7_m4;

p5_m7=nm3_d(a_101_1_1_101[],b_100_0_100_99[],c_n1_n1_99_98[],clk,reset);

p5_m8=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_99_n1_99_99[],clk,reset);

p4_m5=p5_m8;

p1_m5=nm3_d(a_1_101_100_0[],b_0_100_99_n1[],c_n1_99_98_98[],clk,reset);

p0_m4=p1_m5;

p5_m9=nm3_d(a_101_1_101_101[],b_100_0_100_100[],c_99_n1_n1_99[],clk,reset);

p4_m6=p5_m9;

p1_m6=nm3_d(a_1_101_101_100[],b_0_100_99_n1[],c_n1_99_98_n2[],clk,reset);

p11_m3=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_0_100_99_n1[],clk,reset);

p10_m2=p11_m3;

p3_m4=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_99_n1_99_98[],clk,reset);

p2_m3=p3_m4;

p1_m7=nm3_d(a_1_101_101_100[],b_0_100_100_99[],c_n1_99_99_98[],clk,reset);

p0_m5=p1_m7;
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```
p7_m5=nm3_d(a_102_101_1_101[],b_100_100_0_100[],c_99_99_n1_99[],clk,reset);
p6_m5=p7_m5;

p3_m5=nm3_d(a_1_101_101_100[],b_0_100_100_99[],c_n1_n1_99_98[],clk,reset);
p2_m4=p3_m5;

p7_m6=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_99_99_n1_99[],clk,reset);

p7_m7=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_99_99_n1_99[],clk,reset);
p6_m6=p7_m7;

p3_m6=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_n1_n1_99_98[],clk,reset);
p2_m5=p3_m6;

p11_m4=nm3_d(a_2_102_101_1[],b_101_101_100_0[],c_100_100_99_n1[],clk,reset);
p10_m3=p11_m4;

p5_m10=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_99_n1_99_99[],clk,reset);
p4_m7=p5_m10;

p5_m11=nm3_d(a_101_1_1_101[],b_100_0_0_100[],c_99_n1_99_99[],clk,reset);
p4_m8=p5_m11;

p11_m5=nm3_d(a_102_102_101_1[],b_101_101_100_0[],c_100_100_99_n1[],clk,reset);
p10_m4=p11_m5;

p1_m8=nm3_d(a_1_101_100_100[],b_0_100_99_99[],c_n1_99_98_98[],clk,reset);
p0_m6=p1_m8;

p9_m5=nm3_d(a_102_101_1_1[],b_101_100_100_0[],c_100_99_99_n1[],clk,reset);
p8_m4=p9_m5;

p1_m9=nm3_d(a_1_1_101_100[],b_0_100_99_99[],c_n1_99_98_n2[],clk,reset);

p9_m6=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_100_99_n1_99[],clk,reset);
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```
p8_m5=p9_m6;

p9_m7=nm3_d(a_102_102_101_1[],b_101_100_0_0[],c_100_99_n1_99[],clk,reset);

p3_m7=nm3_d(a_101_1_101_100[],b_0_0_100_99[],c_n1_99_98_n2[],clk,reset);

p7_m8=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_99_n1_n1_99[],clk,reset);

p3_m8=nm3_d(a_101_1_101_100[],b_0_0_100_99[],c_n1_99_99_98[],clk,reset);

p2_m6=p3_m8;

p1_m10=nm3_d(a_101_1_101_100[],b_0_100_99_99[],c_n1_99_98_n2[],clk,reset);

p9_m8=nm3_d(a_102_101_101_1[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);

p8_m6=p9_m8;

p3_m9=nm3_d(a_101_1_101_100[],b_0_0_100_99[],c_99_n1_99_98[],clk,reset);

p2_m7=p3_m9;

p5_m12=nm3_d(a_101_1_101_100[],b_100_0_100_100[],c_99_n1_99_99[],clk,reset);

p4_m9=p5_m12;

p7_m9=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_100_99_n1_99[],clk,reset);

p6_m7=p7_m9;

p7_m10=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_99_n1_99_98[],clk,reset);

p9_m9=nm3_d(a_102_101_1_101[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);

p8_m7=p9_m9;

p1_m11=nm3_d(a_1_1_101_100[],b_0_100_99_n1[],c_99_99_98_n2[],clk,reset);

p9_m10=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_100_99_n1_n1[],clk,reset);

p8_m8=p9_m10;

p11_m6=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_100_100_99_n1[],clk,reset);

p10_m5=p11_m6;
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```
p3_m10=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_n1_n1_99_98[],clk,reset);  
p2_m8=p3_m10;  
  
p3_m11=nm3_d(a_101_1_101_100[],b_0_0_100_99[],c_n1_99_98_98[],clk,reset);  
p5_m13=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_99_n1_99_98[],clk,reset);  
p4_m10=p5_m13;  
  
p7_m11=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_99_n1_n1_99[],clk,reset);  
p9_m11=nm3_d(a_102_101_101_1[],b_101_100_0_100[],c_100_99_n1_99[],clk,reset);  
p1_m12=nm3_d(a_1_101_100_100[],b_0_100_99_n1[],c_99_99_98_n2[],clk,reset);  
p5_m14=nm3_d(a_102_101_1_101[],b_100_0_100_100[],c_99_n1_99_98[],clk,reset);  
p11_m7=nm3_d(a_102_102_101_1[],b_101_100_100_0[],c_100_99_99_n1[],clk,reset);  
p10_m6=p11_m7;  
  
p7_m12=nm3_d(a_102_101_1_101[],b_101_100_0_100[],c_99_n1_99_99[],clk,reset);  
p1_m13=nm3_d(a_1_1_101_100[],b_0_100_99_n1[],c_n1_99_98_n2[],clk,reset);  
p1_m14=nm3_d(a_101_1_101_100[],b_0_100_99_n1[],c_n1_99_98_n2[],clk,reset);  
p9_m12=nm3_d(a_2_102_101_1[],b_101_100_0_100[],c_100_99_n1_99[],clk,reset);  
p5_m15=nm3_d(a_101_1_1_101[],b_100_0_100_100[],c_99_n1_n1_99[],clk,reset);  
p4_m11=p5_m15;  
  
p5_m16=nm3_d(a_101_101_1_101[],b_100_0_100_100[],c_99_n1_99_99[],clk,reset);  
p4_m12=p5_m16;  
  
p5_m17=nm3_d(a_101_1_1_101[],b_100_0_100_100[],c_99_n1_99_98[],clk,reset);  
p4_m13=p5_m17;  
  
p3_m12=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_99_n1_99_98[],clk,reset);  
p2_m9=p3_m12;
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p11_m8=nm3_d(a_2_102_101_1[],b_101_100_100_0[],c_100_99_n1_n1[],clk,reset);
p11_m9=nm3_d(a_2_102_101_1[],b_101_101_100_0[],c_0_100_99_n1[],clk,reset);
p10_m7=p11_m9;

p1_m15=nm3_d(a_1_1_101_100[],b_0_100_99_n1[],c_99_98_98_n2[],clk,reset);
p5_m18=nm3_d(a_102_101_1_101[],b_100_0_0_100[],c_99_n1_99_98[],clk,reset);
p1_m16=nm3_d(a_101_1_101_100[],b_0_100_99_n1[],c_99_98_98_n2[],clk,reset);
p7_m13=nm3_d(a_101_101_1_101[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);
p6_m8=p7_m13;

p7_m14=nm3_d(a_102_101_1_101[],b_100_100_0_100[],c_99_n1_99_99[],clk,reset);
p3_m13=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_n1_n1_99_98[],clk,reset);
p11_m10=nm3_d(a_102_101_101_1[],b_101_101_100_0[],c_100_100_99_n1[],clk,reset);
p10_m8=p11_m10;

p1_m17=nm3_d(a_1_101_100_0[],b_0_100_99_99[],c_n1_99_98_98[],clk,reset);
p0_m7=p1_m17;

p3_m14=nm3_d(a_1_1_101_100[],b_100_0_100_99[],c_99_n1_99_99[],clk,reset);
p2_m10=p3_m14;

p1_m18=nm3_d(a_1_101_101_100[],b_0_100_99_99[],c_n1_99_98_n2[],clk,reset);
p0_m8=p1_m18;

p1_m19=nm3_d(a_1_1_101_100[],b_0_100_100_99[],c_n1_99_98_98[],clk,reset);
p0_m9=p1_m19;

p3_m15=nm3_d(a_1_1_101_100[],b_0_100_100_99[],c_n1_n1_99_98[],clk,reset);
p2_m11=p3_m15;

p5_m19=nm3_d(a_102_101_1_101[],b_100_0_100_99[],c_n1_n1_99_98[],clk,reset);
```

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p7_m15=nm3_d(a_102_101_1_101[],b_100_0_0_100[],c_99_n1_99_99[],clk,reset);
p11_m11=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_100_99_n1_n1[],clk,reset);
p7_m16=nm3_d(a_101_101_1_101[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);
p6_m9=p7_m16;

p1_m20=nm3_d(a_1_101_100_100[],b_0_100_99_n1[],c_n1_99_98_n2[],clk,reset);
p0_m10=p1_m20;

p7_m17=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_99_n1_99_98[],clk,reset);
p11_m12=nm3_d(a_102_102_101_1[],b_101_100_100_0[],c_100_100_99_n1[],clk,reset);
p10_m9=p11_m12;

p9_m13=nm3_d(a_102_102_101_1[],b_101_100_0_100[],c_100_99_n1_99[],clk,reset);
p5_m20=nm3_d(a_102_101_1_101[],b_100_0_100_99[],c_n1_99_99_98[],clk,reset);
p7_m18=nm3_d(a_101_101_1_101[],b_100_100_0_100[],c_100_99_n1_99[],clk,reset);
p6_m10=p7_m18;

p11_m13=nm3_d(a_2_102_101_1[],b_101_100_100_0[],c_100_99_n1_99[],clk,reset);
p3_m16=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_n1_99_98_n2[],clk,reset);
p9_m14=nm3_d(a_2_102_101_1[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);
p11_m14=nm3_d(a_2_102_101_101[],b_1_101_100_0[],c_100_99_99_n1[],clk,reset);
p1_m21=nm3_d(a_1_101_101_100[],b_0_100_99_99[],c_n1_99_98_98[],clk,reset);
p0_m11=p1_m21;

p9_m15=nm3_d(a_102_102_101_1[],b_101_100_0_100[],c_99_99_n1_99[],clk,reset);
p11_m15=nm3_d(a_102_101_101_1[],b_101_100_100_0[],c_100_100_99_n1[],clk,reset);
p10_m10=p11_m15;

p11_m16=nm3_d(a_2_102_101_1[],b_101_101_100_0[],c_100_99_n1_99[],clk,reset);
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p11_m17=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_0_100_99_99[],clk,reset);
p10_m11=p11_m17;

p7_m19=nm3_d(a_102_101_101_1[],b_101_100_0_100[],c_99_n1_99_99[],clk,reset);
p3_m17=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_n1_99_99_98[],clk,reset);
p2_m12=p3_m17;

p11_m18=nm3_d(a_2_102_101_1[],b_1_101_100_0[],c_100_99_99_n1[],clk,reset);
p1_m22=nm3_d(a_101_1_101_100[],b_0_100_100_99[],c_n1_99_98_n2[],clk,reset);
p11_m19=nm3_d(a_2_102_101_1[],b_101_100_100_0[],c_100_99_99_n1[],clk,reset);
p10_m12=p11_m19;

p11_m20=nm3_d(a_2_2_102_101[],b_1_101_100_0[],c_100_99_n1_99[],clk,reset);
p3_m18=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_n1_99_98_n2[],clk,reset);
p3_m19=nm3_d(a_101_1_1_101[],b_100_0_100_99[],c_n1_99_98_n2[],clk,reset);
p3_m20=nm3_d(a_101_101_1_101[],b_100_0_100_99[],c_n1_99_98_98[],clk,reset);
p11_m21=nm3_d(a_2_102_102_101[],b_1_101_100_0[],c_100_99_99_n1[],clk,reset);
p7_m20=nm3_d(a_102_101_1_101[],b_100_100_0_100[],c_99_n1_99_98[],clk,reset);
p1_m23=nm3_d(a_1_101_101_100[],b_0_100_99_99[],c_n1_99_99_98[],clk,reset);
p0_m12=p1_m23;

p11_m22=nm3_d(a_2_102_101_1[],b_101_101_100_0[],c_100_99_n1_n1[],clk,reset);
p3_m21=nm3_d(a_102_101_1_101[],b_100_0_100_99[],c_n1_99_98_n2[],clk,reset);
p5_m21=nm3_d(a_101_101_1_101[],b_100_0_0_100[],c_99_n1_99_99[],clk,reset);
p4_m14=p5_m21;

p7_m21=nm3_d(a_2_102_101_1[],b_101_100_0_100[],c_99_n1_99_99[],clk,reset);
p9_m16=nm3_d(a_102_102_101_1[],b_101_100_100_0[],c_100_99_n1_n1[],clk,reset);
```

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p8_m9=p9_m16;
p7_m22=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_99_n1_99_99[],clk,reset);
p9_m17=nm3_d(a_102_101_101_1[],b_101_100_0_0[],c_100_99_99_n1[],clk,reset);
p8_m10=p9_m17;
p3_m22=nm3_d(a_101_1_101_100[],b_0_100_100_99[],c_n1_99_98_98[],clk,reset);
p9_m18=nm3_d(a_102_101_1_1[],b_101_100_0_0[],c_100_99_n1_99[],clk,reset);
p8_m11=p9_m18;
p11_m23=nm3_d(a_2_102_101_101[],b_1_101_100_0[],c_100_99_n1_n1[],clk,reset);
p9_m19=nm3_d(a_102_102_101_1[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);
p8_m12=p9_m19;
p11_m24=nm3_d(a_102_102_101_1[],b_101_101_100_0[],c_0_100_99_n1[],clk,reset);
p10_m13=p11_m24;
p1_m24=nm3_d(a_1_1_101_100[],b_0_100_99_99[],c_n1_99_98_98[],clk,reset);
p0_m13=p1_m24;
p3_m23=nm3_d(a_102_101_1_101[],b_100_0_100_99[],c_n1_99_98_98[],clk,reset);
p9_m20=nm3_d(a_2_102_101_1[],b_101_100_0_100[],c_99_n1_n1_99[],clk,reset);
p5_m22=nm3_d(a_102_101_1_101[],b_100_0_100_99[],c_99_n1_99_98[],clk,reset);
p9_m21=nm3_d(a_102_101_101_1[],b_101_100_0_0[],c_100_99_n1_99[],clk,reset);
p8_m13=p9_m21;
p11_m25=nm3_d(a_2_102_102_101[],b_1_101_100_0[],c_100_99_n1_n1[],clk,reset);
p9_m22=nm3_d(a_102_101_101_1[],b_101_100_0_100[],c_99_99_n1_99[],clk,reset);
p7_m23=nm3_d(a_2_102_101_1[],b_101_100_0_100[],c_99_n1_99_98[],clk,reset);
p3_m24=nm3_d(a_101_1_101_100[],b_0_100_100_99[],c_n1_99_99_98[],clk,reset);
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p2_m13=p3_m24;  
p11_m26=nm3_d(a_2_102_101_101[],b_1_101_100_0[],c_100_100_99_n1[],clk,reset);  
p9_m23=nm3_d(a_102_101_1_1[],b_101_100_0_100[],c_100_99_n1_n1[],clk,reset);  
p8_m14=p9_m23;  
p7_m24=nm3_d(a_101_1_1_101[],b_100_100_0_100[],c_99_99_n1_99[],clk,reset);  
p6_m11=p7_m24;  
p1_m25=nm3_d(a_1_101_100_100[],b_0_100_99_n1[],c_n1_99_98_98[],clk,reset);  
p0_m14=p1_m25;  
p5_m23=nm3_d(a_101_101_1_101[],b_100_0_100_99[],c_99_n1_99_98[],clk,reset);  
p7_m25=nm3_d(a_102_101_1_101[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);  
p6_m12=p7_m25;  
p11_m27=nm3_d(a_2_2_102_101[],b_1_101_100_0[],c_100_99_n1_n1[],clk,reset);  
p3_m25=nm3_d(a_101_1_101_100[],b_100_0_100_99[],c_n1_99_98_98[],clk,reset);  
p1_m26=nm3_d(a_1_101_100_100[],b_0_100_99_99[],c_n1_99_98_n2[],clk,reset);  
p0_m15=p1_m26;  
p11_m28=nm3_d(a_2_102_102_101[],b_1_101_100_0[],c_100_100_99_n1[],clk,reset);  
p9_m24=nm3_d(a_2_102_101_1[],b_101_100_0_100[],c_99_99_n1_99[],clk,reset);  
p3_m26=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_n1_99_99_98[],clk,reset);  
p5_m24=nm3_d(a_101_101_1_101[],b_100_0_100_99[],c_n1_n1_99_98[],clk,reset);  
p11_m29=nm3_d(a_2_2_102_101[],b_1_101_100_0[],c_100_99_99_n1[],clk,reset);  
p3_m27=nm3_d(a_101_1_1_101[],b_100_0_100_99[],c_n1_99_98_98[],clk,reset);  
p9_m25=nm3_d(a_102_101_101_1[],b_101_100_100_0[],c_100_99_n1_n1[],clk,reset);  
p8_m15=p9_m25;
```

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p1_m27=nm3_d(a_1_101_101_100[],b_0_100_100_99[],c_n1_99_98_98[],clk,reset);
p0_m16=p1_m27;

p1_m28=nm3_d(a_1_101_101_100[],b_0_100_99_n1[],c_99_99_98_n2[],clk,reset);
p3_m28=nm3_d(a_1_101_101_100[],b_0_0_100_99[],c_n1_n1_99_98[],clk,reset);

p2_m14=p3_m28;

p11_m30=nm3_d(a_2_102_101_101[],b_1_101_100_0[],c_100_99_n1_99[],clk,reset);
p3_m29=nm3_d(a_101_1_1_101[],b_100_0_100_99[],c_n1_99_99_98[],clk,reset);
p3_m30=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_99_n1_99_99[],clk,reset);

p2_m15=p3_m30;

p11_m31=nm3_d(a_102_2_102_101[],b_1_101_100_0[],c_100_99_n1_n1[],clk,reset);
p11_m32=nm3_d(a_102_2_102_101[],b_1_101_100_0[],c_100_99_99_n1[],clk,reset);

p3_m31=nm3_d(a_101_101_1_101[],b_100_0_100_99[],c_n1_99_99_98[],clk,reset);

p11_m33=nm3_d(a_2_102_101_101[],b_1_101_100_0[],c_0_100_99_n1[],clk,reset);

p5_m25=nm3_d(a_101_1_101_101[],b_100_0_100_100[],c_99_n1_99_98[],clk,reset);

p4_m15=p5_m25;

p7_m26=nm3_d(a_101_101_1_101[],b_100_100_0_100[],c_99_n1_n1_99[],clk,reset);

p6_m13=p7_m26;

p11_m34=nm3_d(a_102_2_102_101[],b_1_101_100_0[],c_100_99_n1_99[],clk,reset);

p3_m32=nm3_d(a_101_1_101_101[],b_100_0_100_99[],c_n1_99_98_98[],clk,reset);

p1_m29=nm3_d(a_101_1_101_100[],b_0_100_99_n1[],c_99_98_n2_n2[],clk,reset);

p7_m27=nm3_d(a_102_101_101_1[],b_101_100_0_100[],c_99_n1_n1_99[],clk,reset);

p11_m35=nm3_d(a_102_102_101_1[],b_101_101_100_0[],c_100_99_99_n1[],clk,reset);

p10_m14=p11_m35;
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p7_m28=nm3_d(a_102_102_101_1[],b_101_100_0_100[],c_99_n1_n1_99[],clk,reset);  
p11_m36=nm3_d(a_2_102_102_101[],b_1_101_100_0[],c_100_99_n1_99[],clk,reset);  
p7_m29=nm3_d(a_102_102_101_1[],b_101_100_0_100[],c_99_n1_99_98[],clk,reset);  
p7_m30=nm3_d(a_102_102_101_1[],b_101_100_0_100[],c_99_n1_99_99[],clk,reset);  
p1_m30=nm3_d(a_1_1_101_100[],b_0_100_100_99[],c_n1_99_98_n2[],clk,reset);  
p2_m16=nm3_d(a_1_101_100_100[],b_0_100_100_99[],c_99_n1_99_99[],clk,reset);  
p10_m15=nm3_d(a_101_101_1_1[],b_101_100_100_0[],c_0_100_100_99[],clk,reset);  
p7_m31=nm3_d(a_101_1_1_101[],b_100_100_0_100[],c_100_99_n1_n1[],clk,reset);  
p6_m14=p7_m31;  
p5_m26=nm3_d(a_1_1_101_100[],b_100_0_100_100[],c_99_n1_n1_99[],clk,reset);  
p4_m16=p5_m26;  
p8_m16=nm3_d(a_101_1_1_101[],b_101_100_0_0[],c_100_100_99_99[],clk,reset);  
p7_m32=nm3_d(a_101_1_101_101[],b_100_0_0_100[],c_99_99_n1_n1[],clk,reset);  
p6_m15=p7_m32;  
p1_m31=nm3_d(a_1_101_100_0[],b_0_100_99_99[],c_n1_n1_99_98[],clk,reset);  
p0_m17=p1_m31;  
p0_m18=nm3_d(a_1_101_100_0[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);  
p10_m16=nm3_d(a_102_101_101_1[],b_101_101_100_0[],c_0_100_100_99[],clk,reset);  
p2_m17=nm3_d(a_1_101_101_100[],b_0_0_100_99[],c_99_n1_n1_99[],clk,reset);  
p2_m18=nm3_d(a_1_101_100_100[],b_0_0_100_100[],c_99_99_n1_n1_99[],clk,reset);  
p0_m19=nm3_d(a_101_100_100_0[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);  
p7_m33=nm3_d(a_101_101_1_101[],b_100_100_0_100[],c_100_99_n1_n1[],clk,reset);  
p6_m16=p7_m33;
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p3_m33=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_99_n1_n1_99[],clk,reset);  
p2_m19=p3_m33;  
  
p8_m17=nm3_d(a_101_101_1_101[],b_101_100_100_0[],c_100_100_99_99[],clk,reset);  
p8_m18=nm3_d(a_101_1_1_101[],b_101_100_0_0[],c_100_100_99_n1[],clk,reset);  
p2_m20=nm3_d(a_1_101_101_100[],b_0_0_100_100[],c_99_n1_n1_99[],clk,reset);  
p1_m32=nm3_d(a_101_101_100_0[],b_0_100_99_99[],c_n1_99_99_98[],clk,reset);  
p0_m20=p1_m32;  
  
p9_m26=nm3_d(a_102_101_1_1[],b_101_100_100_0[],c_100_100_99_n1[],clk,reset);  
p8_m19=p9_m26;  
  
p3_m34=nm3_d(a_1_101_101_100[],b_0_0_100_99[],c_99_n1_99_99[],clk,reset);  
p2_m21=p3_m34;  
  
p7_m34=nm3_d(a_101_1_1_101[],b_100_0_0_100[],c_100_99_n1_n1[],clk,reset);  
p6_m17=p7_m34;  
  
p1_m33=nm3_d(a_1_101_100_0[],b_0_100_99_99[],c_n1_99_99_98[],clk,reset);  
p0_m21=p1_m33;  
  
p3_m35=nm3_d(a_1_101_101_100[],b_0_0_100_99[],c_n1_n1_99_99[],clk,reset);  
p2_m22=p3_m35;  
  
p6_m18=nm3_d(a_101_1_101_101[],b_100_0_0_100[],c_100_99_n1_n1[],clk,reset);  
p10_m17=nm3_d(a_102_101_1_1[],b_101_101_100_100[],c_0_0_100_99[],clk,reset);  
p11_m37=nm3_d(a_102_102_101_1[],b_101_101_100_0[],c_0_100_99_99[],clk,reset);  
p10_m18=p11_m37;  
  
p5_m27=nm3_d(a_101_1_101_101[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);  
p4_m17=p5_m27;
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p0_m22=nm3_d(a_101_100_100_0[],b_0_100_99_99[],c_n1_99_99_98[],clk,reset);
p11_m38=nm3_d(a_102_101_101_1[],b_101_101_100_0[],c_0_100_99_99[],clk,reset);
p10_m19=p11_m38;
p10_m20=nm3_d(a_102_101_1_1[],b_101_101_100_100[],c_0_0_100_100[],clk,reset);
p6_m19=nm3_d(a_101_1_1_101[],b_100_100_0_0[],c_100_99_99_n1[],clk,reset);
p5_m28=nm3_d(a_101_1_101_100[],b_100_0_100_100[],c_99_n1_n1_99[],clk,reset);
p4_m18=p5_m28;
p4_m19=nm3_d(a_1_101_101_100[],b_100_0_100_100[],c_99_99_n1_n1[],clk,reset);
p6_m20=nm3_d(a_101_1_101_101[],b_100_0_0_100[],c_100_99_99_n1[],clk,reset);
p2_m23=nm3_d(a_101_101_100_100[],b_0_0_100_100[],c_99_n1_n1_99[],clk,reset);
p7_m35=nm3_d(a_101_101_1_101[],b_101_100_0_100[],c_100_99_n1_n1[],clk,reset);
p6_m21=p7_m35;
p10_m21=nm3_d(a_102_101_101_1[],b_101_101_100_100[],c_0_100_100_99[],clk,reset);
p6_m22=nm3_d(a_1_1_101_101[],b_100_100_0_100[],c_100_99_99_n1[],clk,reset);
p0_m23=nm3_d(a_101_100_100_0[],b_0_100_99_99[],c_n1_n1_99_99[],clk,reset);
p9_m27=nm3_d(a_101_101_1_101[],b_101_100_0_0_0[],c_100_99_99_n1[],clk,reset);
p8_m20=p9_m27;
p1_m34=nm3_d(a_101_101_100_0[],b_0_100_99_n1[],c_n1_99_99_98[],clk,reset);
p0_m24=p1_m34;
p4_m20=nm3_d(a_1_1_101_100[],b_100_0_0_100[],c_99_99_n1_n1[],clk,reset);
p8_m21=nm3_d(a_101_1_1_101[],b_101_100_100_0[],c_0_100_99_99[],clk,reset);
p1_m35=nm3_d(a_1_101_100_100[],b_0_100_100_99[],c_n1_n1_99_98[],clk,reset);
p0_m25=p1_m35;
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p11_m39=nm3_d(a_102_102_101_1[],b_1_101_100_0[],c_0_100_99_99[],clk,reset);
p10_m22=p11_m39;

p2_m24=nm3_d(a_101_101_100_100[],b_0_0_100_100[],c_99_99_n1_n1[],clk,reset);

p4_m21=nm3_d(a_1_1_101_100[],b_100_0_100_100[],c_99_99_n1_99[],clk,reset);

p6_m23=nm3_d(a_1_1_101_101[],b_100_0_0_100[],c_100_99_99_n1[],clk,reset);

p8_m22=nm3_d(a_101_1_1_101[],b_100_100_0_0[],c_100_100_99_n1[],clk,reset);

p4_m22=nm3_d(a_1_101_101_100[],b_0_0_100_100[],c_99_99_n1_n1[],clk,reset);

p4_m23=nm3_d(a_1_1_101_100[],b_100_0_0_100[],c_100_99_n1_n1[],clk,reset);

p10_m23=nm3_d(a_102_101_1_1[],b_101_101_100_0[],c_0_100_100_99[],clk,reset);

p11_m40=nm3_d(a_102_101_1_1[],b_101_100_100_0[],c_100_100_99_99[],clk,reset);

p10_m24=p11_m40;

p4_m24=nm3_d(a_1_1_101_101[],b_100_0_0_100[],c_99_99_n1_n1[],clk,reset);

p4_m25=nm3_d(a_1_1_101_100[],b_100_0_100_100[],c_99_99_n1_n1[],clk,reset);

p2_m25=nm3_d(a_1_101_100_100[],b_0_0_100_99[],c_99_n1_99_99[],clk,reset);

p9_m28=nm3_d(a_102_101_1_101[],b_101_100_0_0[],c_100_99_99_n1[],clk,reset);

p8_m23=p9_m28;

p4_m26=nm3_d(a_1_101_101_100[],b_100_0_0_100[],c_99_99_n1_n1[],clk,reset);

p0_m26=nm3_d(a_101_100_100_0[],b_100_100_99_99[],c_n1_99_99_98[],clk,reset);

p1_m36=nm3_d(a_101_101_100_0[],b_0_100_99_n1[],c_n1_99_98_98[],clk,reset);

p0_m27=p1_m36;

p8_m24=nm3_d(a_101_1_1_101[],b_101_100_100_0[],c_100_100_99_99[],clk,reset);

p8_m25=nm3_d(a_101_101_1_1[],b_101_100_100_0[],c_100_100_99_99[],clk,reset);

p0_m28=nm3_d(a_101_100_100_0[],b_100_100_99_99[],c_n1_n1_99_99[],clk,reset);
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```
p10_m25=nm3_d(a_102_101_1_1[],b_101_100_100_0[],c_0_100_99_99[],clk,reset);
p1_m37=nm3_d(a_1_101_100_100[],b_0_100_99_99[],c_n1_n1_99_98[],clk,reset);
p0_m29=p1_m37;
p3_m36=nm3_d(a_1_101_100_100[],b_0_0_100_99[],c_n1_n1_99_99[],clk,reset);
p2_m26=p3_m36;
p8_m26=nm3_d(a_101_1_1_101[],b_101_100_100_0[],c_0_100_100_99[],clk,reset);
p8_m27=nm3_d(a_101_101_1_101[],b_101_100_0_0[],c_100_100_99_n1[],clk,reset);
p2_m27=nm3_d(a_1_101_100_100[],b_0_0_100_99[],c_99_n1_n1_99[],clk,reset);
p0_m30=nm3_d(a_101_100_0_0[],b_100_100_99_99[],c_n1_n1_99_99[],clk,reset);
p6_m24=nm3_d(a_1_1_101_101[],b_100_0_0_100[],c_100_99_n1_n1[],clk,reset);
p2_m28=nm3_d(a_101_101_100_100[],b_0_0_100_99[],c_99_n1_n1_99[],clk,reset);
p11_m41=nm3_d(a_102_101_101_1[],b_101_101_100_0[],c_0_100_99_n1[],clk,reset);
p10_m26=p11_m41;
p10_m27=nm3_d(a_102_101_1_1[],b_101_100_100_0[],c_0_100_100_99[],clk,reset);
p6_m25=nm3_d(a_101_1_101_101[],b_100_100_0_100[],c_100_99_99_n1[],clk,reset);
p0_m31=nm3_d(a_101_101_100_0[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);
p6_m26=nm3_d(a_101_1_101_101[],b_100_100_0_0[],c_100_99_99_n1[],clk,reset);
p10_m28=nm3_d(a_101_101_1_1[],b_101_101_100_100[],c_0_0_100_100[],clk,reset);
p5_m29=nm3_d(a_1_1_101_100[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);
p4_m27=p5_m29;
p3_m37=nm3_d(a_1_101_101_100[],b_0_100_100_99[],c_99_n1_n1_99_99[],clk,reset);
p2_m29=p3_m37;
p8_m28=nm3_d(a_101_1_1_101[],b_100_100_0_0[],c_100_100_99_99[],clk,reset);
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p6_m27=nm3_d(a_1_1_101_100[],b_100_0_0_100[],c_100_99_99_n1[],clk,reset);
p11_m42=nm3_d(a_102_101_101_1[],b_101_101_100_0[],c_100_100_99_99[],clk,reset);
p10_m29=p11_m42;
p5_m30=nm3_d(a_1_1_101_100[],b_100_0_100_100[],c_99_n1_99_99[],clk,reset);
p4_m28=p5_m30;
p6_m28=nm3_d(a_101_1_1_101[],b_100_100_0_100[],c_100_99_99_n1[],clk,reset);
p10_m30=nm3_d(a_102_101_1_1[],b_101_101_100_0[],c_0_100_99_99[],clk,reset);
p5_m31=nm3_d(a_101_1_101_100[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);
p4_m29=p5_m31;
p9_m29=nm3_d(a_101_101_1_101[],b_101_100_0_0[],c_100_99_n1_n1[],clk,reset);
p8_m29=p9_m29;
p0_m32=nm3_d(a_101_101_100_0[],b_0_100_99_99[],c_n1_n1_99_98[],clk,reset);
p9_m30=nm3_d(a_102_101_1_1[],b_101_100_0_0[],c_100_100_99_n1[],clk,reset);
p8_m30=p9_m30;
p4_m30=nm3_d(a_1_1_101_100[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);
p5_m32=nm3_d(a_1_1_101_100[],b_0_0_100_100[],c_99_n1_n1_99[],clk,reset);
p4_m31=p5_m32;
p3_m38=nm3_d(a_1_101_100_100[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);
p2_m30=p3_m38;
p2_m31=nm3_d(a_101_101_100_0[],b_0_100_100_99[],c_99_n1_n1_99[],clk,reset);
p4_m32=nm3_d(a_1_101_101_100[],b_0_0_100_100[],c_99_99_n1_99[],clk,reset);
p8_m31=nm3_d(a_101_1_1_101[],b_101_100_0_0[],c_100_99_99_n1[],clk,reset);
p10_m31=nm3_d(a_102_101_1_1[],b_101_101_100_100[],c_0_100_100_99[],clk,reset);
```

```
p8_m32=nm3_d(a_101_101_1_101[],b_101_100_0_0[],c_100_100_99_99[],clk,reset);  
p1_m38=nm3_d(a_1_101_100_0[],b_0_100_100_99[],c_n1_n1_99_98[],clk,reset);  
p0_m33=p1_m38;  
p0_m34=nm3_d(a_101_101_100_0[],b_0_100_100_99[],c_99_n1_99_99[],clk,reset);  
p2_m32=nm3_d(a_1_101_100_100[],b_0_0_100_100[],c_99_99_n1_n1[],clk,reset);  
p2_m33=nm3_d(a_101_101_100_100[],b_0_100_100_99[],c_99_n1_n1_99[],clk,reset);  
p3_m39=nm3_d(a_1_1_101_100[],b_0_0_100_99[],c_n1_n1_99_99[],clk,reset);  
p2_m34=p3_m39;  
p6_m29=nm3_d(a_1_1_101_101[],b_100_100_0_0[],c_100_99_99_n1[],clk,reset);  
p4_m33=nm3_d(a_1_101_101_100[],b_100_0_0_100[],c_100_99_99_n1[],clk,reset);  
p0_m35=nm3_d(a_101_100_100_0[],b_0_100_100_99[],c_99_n1_n1_99[],clk,reset);  
p7_m36=nm3_d(a_101_1_1_101[],b_100_100_0_100[],c_100_99_n1_99[],clk,reset);  
p6_m30=p7_m36;  
p0_m36=nm3_d(a_101_100_100_0[],b_0_100_99_99[],c_n1_n1_99_98[],clk,reset);  
p2_m35=nm3_d(a_1_101_100_100[],b_0_100_100_99[],c_99_n1_n1_99[],clk,reset);  
p4_m34=nm3_d(a_1_101_101_100[],b_100_0_0_100[],c_100_99_n1_n1[],clk,reset);  
p0_m37=nm3_d(a_101_101_100_100[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);  
p0_m38=nm3_d(a_101_101_100_0[],b_0_100_99_99[],c_n1_n1_99_99[],clk,reset);  
p4_m35=nm3_d(a_1_101_101_100[],b_100_0_100_100[],c_99_99_n1_99[],clk,reset);  
p7_m37=nm3_d(a_101_1_1_101[],b_100_100_0_100[],c_99_99_n1_n1[],clk,reset);  
p6_m31=p7_m37;  
p11_m43=nm3_d(a_102_101_101_1[],b_101_100_100_0[],c_100_100_99_99[],clk,reset);  
p10_m32=p11_m43;
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p9_m31=nm3_d(a_102_101_1_101[],b_101_100_0_0[],c_100_100_99_n1[],clk,reset);  
p8_m33=p9_m31;  
  
p10_m33=nm3_d(a_101_101_1_1[],b_101_100_100_0[],c_0_100_99_99[],clk,reset);  
p9_m32=nm3_d(a_101_101_1_101[],b_101_100_0_100[],c_100_99_99_n1[],clk,reset);  
p8_m34=p9_m32;  
  
p6_m32=nm3_d(a_1_1_101_101[],b_100_100_0_0[],c_100_100_99_99[],clk,reset);  
p0_m39=nm3_d(a_101_101_100_0[],b_0_100_100_99[],c_n1_n1_99_98[],clk,reset);  
p6_m33=nm3_d(a_101_1_101_101[],b_100_100_0_100[],c_100_99_n1_n1[],clk,reset);  
p10_m34=nm3_d(a_101_101_1_101[],b_101_100_100_0[],c_0_100_100_99[],clk,reset);  
p2_m36=nm3_d(a_1_101_100_100[],b_0_0_100_100[],c_99_n1_n1_99[],clk,reset);  
p0_m40=nm3_d(a_101_100_100_0[],b_0_100_100_99[],c_99_n1_99_99[],clk,reset);  
p8_m35=nm3_d(a_101_101_1_101[],b_101_100_100_0[],c_100_100_99_n1[],clk,reset);  
p2_m37=nm3_d(a_101_101_100_100[],b_0_100_100_99[],c_99_n1_99_99[],clk,reset);  
p4_m36=nm3_d(a_1_101_101_100[],b_100_0_100_100[],c_99_n1_n1_99[],clk,reset);  
p8_m36=nm3_d(a_101_101_1_101[],b_101_100_100_0[],c_0_100_99_99[],clk,reset);  
p7_m38=nm3_d(a_101_1_1_101[],b_100_0_0_100[],c_99_99_n1_n1[],clk,reset);  
p6_m34=p7_m38;  
  
p3_m40=nm3_d(a_1_101_101_100[],b_0_0_100_99[],c_99_n1_99_98[],clk,reset);  
p2_m38=p3_m40;  
  
p0_m41=nm3_d(a_101_100_100_0[],b_100_100_99_99[],c_n1_n1_99_98[],clk,reset);  
p10_m35=nm3_d(a_101_101_1_1[],b_101_101_100_100[],c_0_0_100_99[],clk,reset);  
p7_m39=nm3_d(a_101_101_1_101[],b_100_100_0_100[],c_100_99_99_n1[],clk,reset);  
p6_m35=p7_m39;
```

```
p10_m36=nm3_d(a_101_101_1_1[],b_101_101_100_0[],c_0_100_100_99[],clk,reset);
p1_m39=nm3_d(a_101_101_100_0[],b_0_100_99_99[],c_n1_99_98_98[],clk,reset);
p0_m42=p1_m39;

p9_m33=nm3_d(a_101_101_1_1[],b_101_100_0_0[],c_100_100_99_n1[],clk,reset);
p8_m37=p9_m33;

p5_m33=nm3_d(a_101_1_101_100[],b_100_0_0_100[],c_99_n1_n1_99[],clk,reset);
p4_m37=p5_m33;

p5_m34=nm3_d(a_101_1_101_101[],b_100_0_100_100[],c_99_99_n1_99[],clk,reset);
p4_m38=p5_m34;

p6_m36=nm3_d(a_101_1_101_101[],b_100_100_0_0[],c_100_100_99_99[],clk,reset);

p11_m44=nm3_d(a_102_102_101_1[],b_101_101_100_0[],c_0_100_100_99[],clk,reset);
p10_m37=p11_m44;

p3_m41=nm3_d(a_1_101_101_100[],b_0_100_100_99[],c_n1_n1_99_99[],clk,reset);
p2_m39=p3_m41;

p11_m45=nm3_d(a_102_102_101_1[],b_1_101_100_0[],c_0_100_100_99[],clk,reset);
p10_m38=p11_m45;

p4_m39=nm3_d(a_1_1_101_101[],b_100_0_0_100[],c_99_99_n1_99[],clk,reset);
p7_m40=nm3_d(a_101_101_1_101[],b_100_100_0_0[],c_100_99_99_n1[],clk,reset);
p6_m37=p7_m40;

p11_m46=nm3_d(a_102_101_101_1[],b_101_100_100_0[],c_0_100_99_n1[],clk,reset);
p10_m39=p11_m46;

p6_m38=nm3_d(a_101_1_101_101[],b_100_100_0_0[],c_100_100_99_n1[],clk,reset);
p1_m40=nm3_d(a_1_101_100_0[],b_0_100_99_n1[],c_n1_99_99_98[],clk,reset);
```

```
p0_m43=p1_m40;

p10_m40=nm3_d(a_101_101_1_1[],b_101_101_100_100[],c_0_100_100_99[],clk,reset);

p10_m41=nm3_d(a_101_101_1_1[],b_101_101_100_0[],c_0_0_100_99[],clk,reset);

p5_m35=nm3_d(a_101_1_101_100[],b_100_0_100_100[],c_99_99_n1_99[],clk,reset);

p4_m40=p5_m35;

% OR the results of the above "number of misses" %

pixel0=lpm_or(p0_m[])

with (LPM_WIDTH=1,LPM_SIZE=43);

% OR the results of the above "number of misses" %

pixel1=lpm_or(p1_m[])

with (LPM_WIDTH=1,LPM_SIZE=40);

% OR the results of the above "number of misses" %

pixel2=lpm_or(p2_m[])

with (LPM_WIDTH=1,LPM_SIZE=39);

% OR the results of the above "number of misses" %

pixel3=lpm_or(p3_m[])

with (LPM_WIDTH=1,LPM_SIZE=41);

% OR the results of the above "number of misses" %

pixel4=lpm_or(p4_m[])
```

```
with (LPM_WIDTH=1,LPM_SIZE=40);

% OR the results of the above "number of misses" %

pixel5=lpm_or(p5_m[])

with (LPM_WIDTH=1,LPM_SIZE=35);

% OR the results of the above "number of misses" %

pixel6=lpm_or(p6_m[])

with (LPM_WIDTH=1,LPM_SIZE=38);

% OR the results of the above "number of misses" %

pixel7=lpm_or(p7_m[])

with (LPM_WIDTH=1,LPM_SIZE=40);

% OR the results of the above "number of misses" %

pixel8=lpm_or(p8_m[])

with (LPM_WIDTH=1,LPM_SIZE=37);

% OR the results of the above "number of misses" %

pixel9=lpm_or(p9_m[])

with (LPM_WIDTH=1,LPM_SIZE=33);

% OR the results of the above "number of misses" %
```

```
pixel10=lpm_or(p10_m[])
with (LPM_WIDTH=1,LPM_SIZE=41);

% OR the results of the above "number of misses" %

pixel11=lpm_or(p11_m[])
with (LPM_WIDTH=1,LPM_SIZE=46);

END;
```